

Date: Friday, 31/10/2008 9:58:41 AM  
 User: Julie Dawson

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: 206L FWD X-TUBE
Job Number	: 43105		
Estimate Number	: 13220		
P.O. Number	:	Part Number	: D206667103TRN
This Issue	: 31/10/2008 S.O. No. :	Drawing Number	: D206-667-143 REV B
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: // Type : CROSSTUBES	Drawing Revision	: B
Previous Run	: 43104	Material	:
Written By	:	Due Date	: 06/11/2008 Qty: 1 Um: Each
Checked & Approved By	JUD 08.10.31		
Comment	: Est Rev.A 08-03-06 new issue DD verified by:ec Est Rev.B 08.04.02 removed polish EC verified by DD		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6002115	Crosstube Material
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch  
 1 D6002-115 Crosstube 834684  
 Check OD = 2.250"; ID = 1.750"

a.m 08.11.02 ①

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA087

2-Turn first side as per Folio FA087

3-File down transition lines smooth.

a.m 08.11.02 ①

3.0	QC1	INSPECT ALL DIM TO DIM SHEET
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Comment: INSPECT ALL DIM TO DIM SHEET

a.m 08.11.02 ①

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA087

2-File down transition lines smooth.

3-Remove sand and plugs

a.m 08.11.02 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 31/10/2008 9:58:41 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L FWD X-TUBE

Job Number: 43105

Part Number: D206667103TRN

Job Number:



Seq. #:

Machine Or Operation:

Description:

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

*Q.m 08.11.03*

6.0

QC8

SECOND CHECK



*AWM 8-11-03*



Comment: SECOND CHECK

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

*Q.m 08.11.04*

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*Q.m 08.11.04*

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in kanban rack

Location:

*X-TUBE CELL*

*AWM 8-11-04*

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

*08/11/05*

Job Completion



*MF 08-11-04*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 43105
<b>Description:</b> Crosstube Assembly (206L High Fwd)		<b>Part Number:</b> D206-667-143
<b>Inspection Dwg:</b> D206-667-143 <b>Rev:</b> B		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	/		
	1.982	+0.005/-0.000	1.987	/		
	2.019	+0.005/-0.000	2.023	/		
	2.058	+0.005/-0.000	2.062	/		
	2.097	+0.005/-0.000	2.099	/		
	2.136	+0.005/-0.000	2.136	/		
	2.176	+0.005/-0.000	2.181	/		
	2.201	+0.005/-0.000	2.203	/		
	0.125	+/-0.010	0.125	/		
	0.400 x 30°	+/-0.010	0.400 x 30°	/		
	R0.063	+/-0.010	R0.063	/		
	R0.500	+/-0.010	R0.500	/		
	4.438	+/-0.030	4.438	/		
SIDE B	104.98	+/-0.020	104.980	/		
	2.240	+0.005/-0.000	2.245	/		
	1.982	+0.005/-0.000	1.987	/		
	2.019	+0.005/-0.000	2.023	/		
	2.058	+0.005/-0.000	2.062	/		
	2.097	+0.005/-0.000	2.098	/		
	2.136	+0.005/-0.000	2.136	/		
	2.176	+0.005/-0.000	2.181	/		
	2.201	+0.005/-0.000	2.203	/		
	0.125	+/-0.010	0.125	/		
	0.400 x 30°	+/-0.010	0.400 x 30°	/		
	R0.063	+/-0.010	R0.063	/		
	R0.500	+/-0.010	R0.500	/		
	4.438	+/-0.030	4.438	/		

<b>Measured by:</b> am	<b>Audited by:</b> ALM	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 08-11-03	<b>Date:</b> 8-11-03	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	



DESIGN PH	DRAWN BY PH	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED HDS	APPROVED HDS	DRAWING NO. D206-667-143	REV. 8 SHEET 1 OF 3
DATE 05.07.26		TITLE CROSSTUBE ASS'Y (206L HIGH FWD)	SCALE NTS
A	00.11.17	NEW ISSUE	
B	05.07.26	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	

RELEASED  
05-07-26 H

**UNDER REVIEW**

05-07-10 PH

re-draw detail F

H  
05.10.31

Qty	Part Number	Description
X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
1	D6002-115	CROSSTUBE
2	D2873-043	NUT PLATE
2	D2873-045	NUT PLATE
2	D2856-400-694	ABRASION STRIP
2	D2891-1	SUPPORT
14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
4	MS21920-20	CLAMP

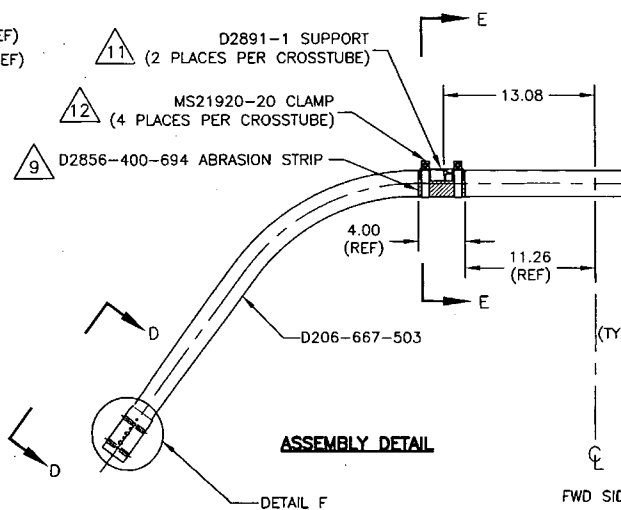
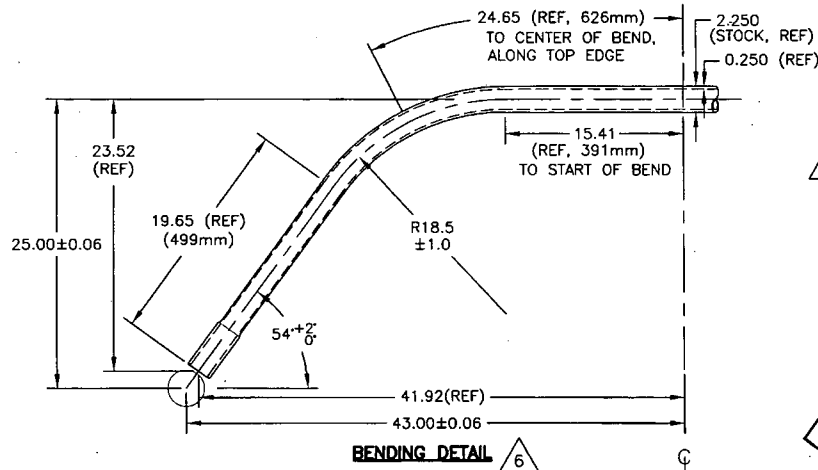
#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH =  $104.98 \pm 0.020$
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) IT IS OPTIONAL TO SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX 241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

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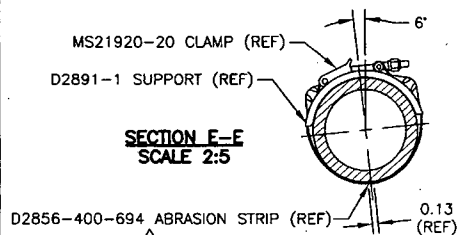
**B**  $\varnothing 0.323^{+0.005}_{-0.000}$   
(TYP 5 PLACES PER CUFF)  
HOLE TO BE ALIGNED WITHIN  $\pm 0.001$   
OF HOLE ON OTHER SIDE OF CUFF

PILOT  $\varnothing 0.128$   
C'SINK  $\varnothing 0.225 \times 100'$   
(TYP 7 PLACES PER CUFF)

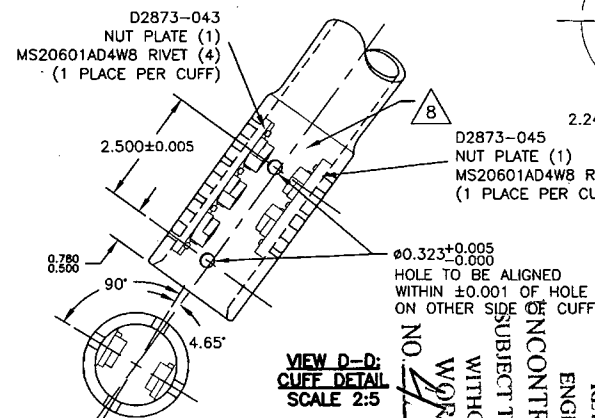
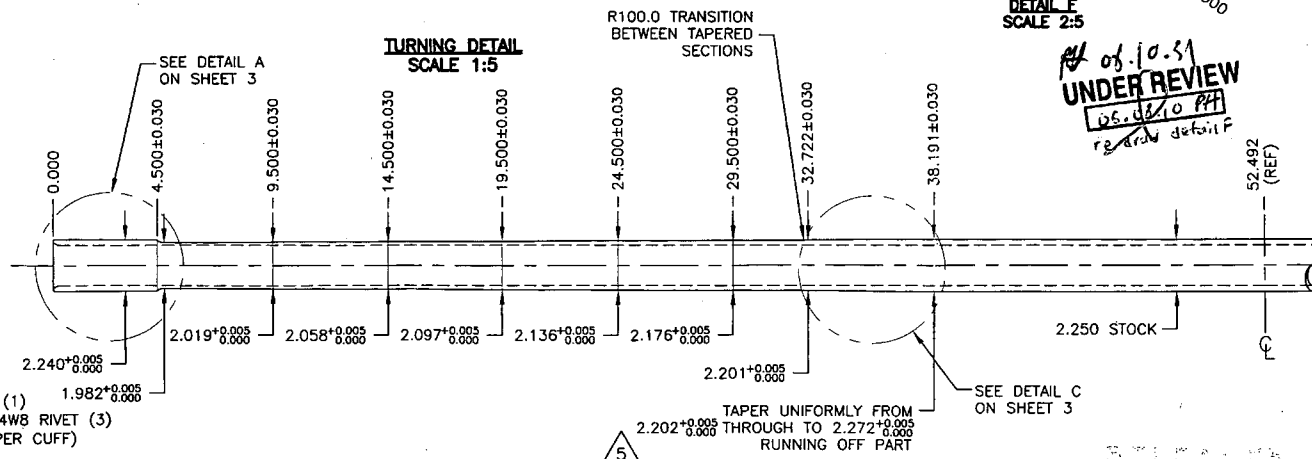
FWD SIDE ONLY

**DETAIL E**  
SCALE 2:5

*05.10.51*  
**UNDER REVIEW**  
*05.08.10 PH*  
*re work detail F*



**TURNING DETAIL**  
SCALE 1:5



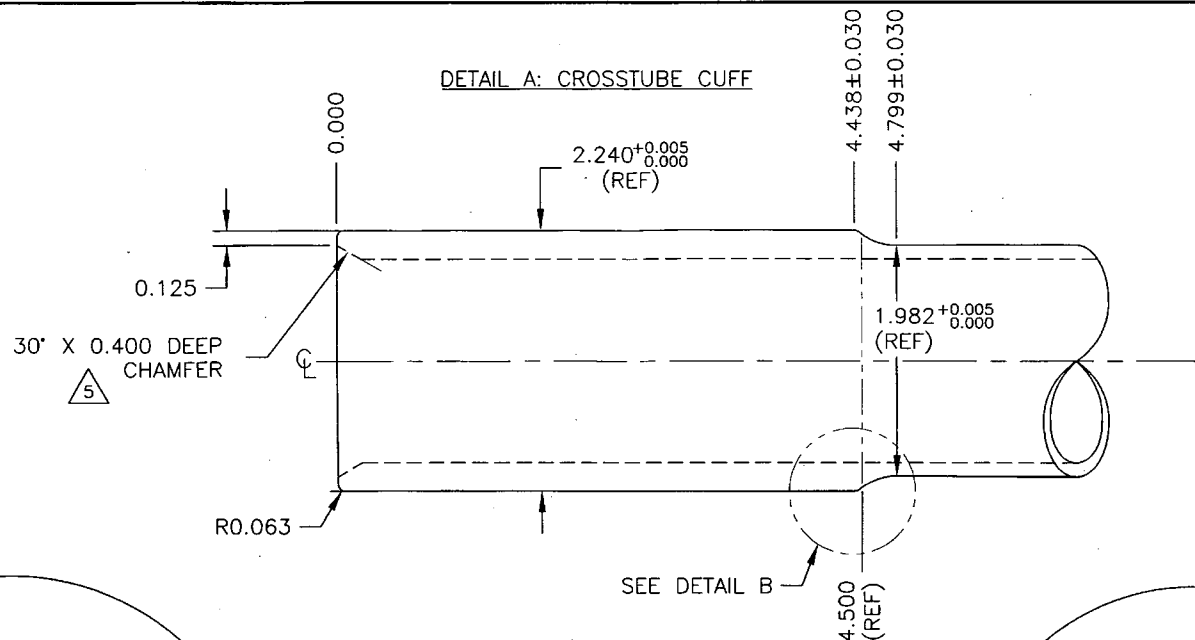
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DESIGN	PH	DRAWN BY	PH
CHECKED	DS	APPROVED	DS
DATE	05.07.26		

<b>DART</b>	DART AEROSPACE LTD. WARRIMUR, ONTARIO, CANADA
DRAWING NO.	D206-667-143
TITLE	CROSSTUBE ASS'Y (206L HIGH FWD)
REV. B	SHEET 2 OF 3
SCALE	1:10



05.07.26 #

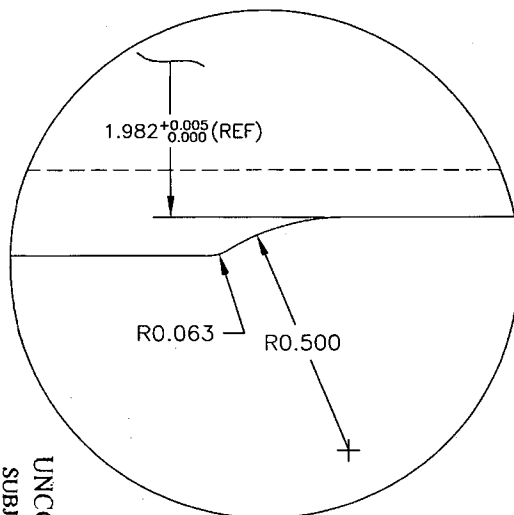
UNDER REVIEW

05.08.10 PH

review detail F

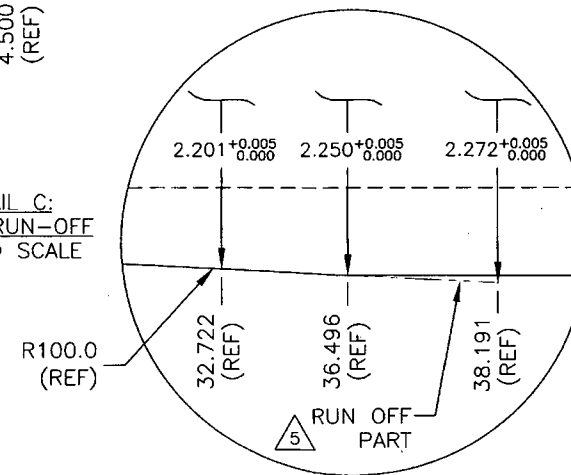
PH

05.08.21



DETAIL B: CUFF  
TRANSITION  
SCALE 4:1

DETAIL C:  
TAPER RUN-OFF  
NOT TO SCALE



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		DATE	05.07.26			D206-667-143	SHEET 3 OF 3
		TITLE	CROSSTUBE ASS'Y (206L HIGH FWD)				SCALE
							1:1



